

REMARKS

Petition of Finality of Restriction/Election of Species Requirement

The applicants have concurrently petitioned the finality of the election of species/restriction requirement with the Group Director for restriction portion of the Examiner's election of species/restriction requirement. Please contact the undersigned if this petition is missing or if a decision has not been granted prior to examination of the claims.

Amendment to the Claims

Given the extensive markups to the claims, a clean copy of the claims follows this paragraph. The claims have been redrafted to correspond to the election of species of ferulic acid deacylase.

1. An isolated ferulic acid deacylase comprising amino acid sequence SEQ ID NO. 30.
2. The isolated ferulic acid deacylase of claim 1, wherein the isolated ferulic acid deacylase is part of a 9400 bp EcoRI-fragment of *Pseudomonas* sp. HR 199 (DSM 7063).
3. An isolated DNA coding for the enzyme according to claim 1.
4. A cosmid clone comprising an isolated DNA according to claim 3.
5. A vector containing an isolated DNA according to claim 3.
6. A microorganism transformed with the isolated DNA according to claim 3.
7. A process of converting ferulic acid to vanillin comprising subjecting ferulic acid to the ferulic acid deacylase of claim 1 for a period of time sufficient to convert the ferulic acid to vanillin and recovering the vanillin thus formed.
8. A method of producing vanillin comprising the steps of:
 - (1) providing a microorganism of claim 6 and expressing a ferulic acid dehydrogenase of claim 1;

- (2) providing ferulic acid to said microorganism; and
 - (3) converting the ferulic acid to vanillin by subjecting ferulic acid to the ferulic acid deacylase for a period of time sufficient to convert the ferulic acid to vanillin and recovering the vanillin thus formed.
9. An isolated DNA coding for the enzyme according to claim 2 comprising SEQ ID NO. 29.
 10. A cosmid clone comprising an isolated DNA according to claim 9.
 11. A vector containing an isolated DNA according to claim 9.
 12. A microorganism transformed with the isolated DNA according to claim 9.
 13. The process of claim 7, wherein the ferulic acid deacylase comprises amino acid sequence SEQ ID NO. 30 and is part of a 9400 bp EcoRI-fragment of *Pseudomonas* sp. HR 199 (DSM 7063).
 14. The method of producing vanillin of claim 8, wherein said microorganism is transformed with an isolated DNA comprising SEQ ID NO. 29 which codes for an isolated ferulic acid deacylase comprising amino acid sequence SEQ ID NO. 30 and is part of a 9400 bp EcoRI-fragment of *Pseudomonas* sp. HR 199 (DSM 7063).
 15. An isolated DNA coding for the enzyme according to claim 1 comprising SEQ ID NO. 29.

The claims have been amended to deleted non-elected species. The claims structure with regard to format is similar to the format adopted in U.S. Patent 6,524,831 (the parent of this application). It is believed that the claim amendments address the Examiner's objection to claim 2, the rejection of claims 1 and 2 for the use of the term "synthetic enzymes" and that no new matter has been added. Claims 1-15 are now pending.

Amendment to the Specification

A brief description of the drawings has been added to page 4, between lines 5-6 of the specification. It is believed that no new matter has been added.

35 U.S.C. § 112, first paragraph (Written Description)

The examiner emphasizes in her rejection that "There is no structure disclosed for a single ferulic acid deacylase nor there is (sic) any teaching as to how to isolate a ferulic acid deacylase." However, this statement is incorrect.

The specification discloses both the nucleobase and amino acid sequence corresponding to a ferulic acid-CoA synthetase ("ferulic acid deacylase"), see SEQ ID NO. 29 and 30, and this enzyme is part of the *Pseudomonas* strain HR 199 (DSM 7063) which has been deposited under the Budapest Treaty. Both SEQ ID NOs. 29 and 30 and the *Pseudomonas* strain HR 199 (DSM 7063) are referenced throughout the specification. Therefore, one of ordinary skill in the art would not only find that the applicants' possessed the claimed invention at the time of filing but that it was adequately described to them. As such, the Witkowski et al., Seffernick et al. and Broun et al. references are not germane to the issue of written description for a *ferulic acid deacylase* when the structure of the enzyme is known. These references might have had some probative value if the enzyme was not described as asserted by the Examiner, but this is simply not the case here.

35 U.S.C. § 112, first paragraph (Lack of Enablement)

The examiner emphasizes in her rejection that "There is no structure disclosed for a single ferulic acid deacylase nor there is (sic) any teaching as to how to isolate a ferulic acid deacylase." However, this statement is incorrect as was indicated above. Moreover, for lack of enablement there is no requirement that even a single example be presented. In light of the fact that the applicants have provided an example, the Examiner's analysis of the *Wands* factors falls short of establishing a holding for lack of enablement.

35 U.S.C. § 102 rejections

- (1) Claim 1 was rejected as being anticipated by Priefert et al. (*J. Bacteriol.*, vol. 179, no. 8, pages 2595-2607, (April 1997)).
- (2) Claim 1 was rejected as being anticipated by Jaeger et al. (*Current Microbiology*, vol. 6, pages 333-336, (1981)).

It is believed that the rejections based on the above references has been rendered moot by the amendments to the claims, i.e. applicants claims are directed toward ferulic acid deacylase and the conversion of ferulic acid to vanillin. The Priefert et al. reference was directed toward the conversion of vanillin to vanillic acid by vanillin dehydrogenase while Jaeger et al. was directed toward the conversion of

coniferyl alcohol to coniferaldehyde by coniferyl alcohol dehydrogenase. Should the scope of the previous claim 1 be re-introduced at a later time, these references will be addressed summarily.

Double Patenting Rejection

The claims have been amended to be directed toward ferulic acid deacylase which should obviate the double patenting rejection over the claims of U.S. Patent 6,624,831.

Closing

Applicants also believe that this application is in condition for allowance. However, should any issue(s) of a minor nature remain, the Examiner is respectfully requested to telephone the undersigned at telephone number (212) 808-0700 so that the issue(s) might be promptly resolved.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment under 37 CFR § 1.111 (9 pages) is being facsimile transmitted to the United States Patent and Trademark Office on the date indicated below:

Date: 1 December 2004

By: Agata Glinka
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